SAMSUNG P50 Chassis, Models CI340ZA, CI347FA

General Description: A colour television receiver chassis with a single integrated circuit decoder. Both 14 and 20-ins. cathode ray tubes are catered for with minor differences between the two models. The circuit waveforms are similar to those given for Samsung Model P36A described previously. The chassis is isolated by mains transformer.

Mains Supply: 240 volts, 50Hz.

Loudspeaker: 8 ohms impedance.

High Voltage Check:

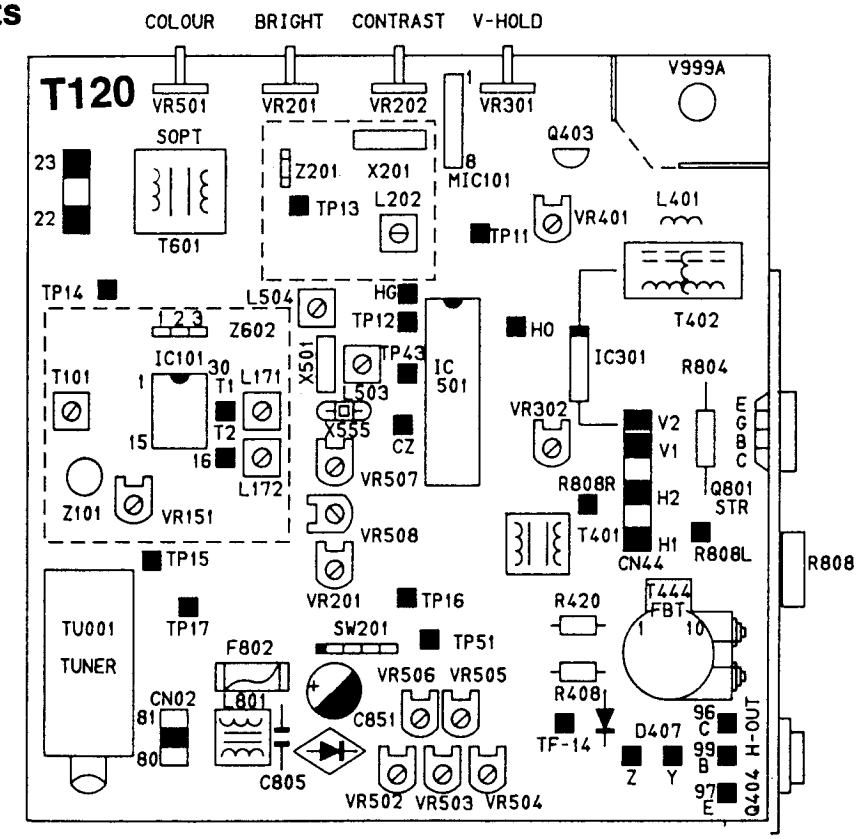
Caution: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. The B+ power supply must be checked to ensure the correct high voltage.

Connect an accurate high voltage meter to the second anode of the picture tube.

Turn on the receiver. Set the Brightness and Contrast controls to minimum (zero beam current).

High voltage should be measured less than 27kV. Rotate the Brightness control to both extremes to be sure the high voltage does not exceed the limit of 27kV under any conditions.

Adjustments



(T120) LOCATION OF ADJUSTMENTS — P50 CHASSIS

Horizontal Oscillator Adjustment (VR401)

Vertical Oscillator Adjustment (VR301):

Vertical Height Adjustment: Height control (VR302) on Main Board changes the size of the picture or pattern, having an equal effect on the top and bottom. Make final adjustment to overscan the mask 2cm at the top and bottom.

Focus Adjustment: Adjust Focus control on FBT (T444) for well defined scanning lines in the centre area of the screen.

Delayed R.F. A.G.C. Adjustment: Tune the set to the strongest station in your area. Turn A.G.C.-Delay control (VR151) on Main Board to fully anti-clockwise position.

Adjust A.G.C.-Delay control clockwise until noise (snow) disappears from the screen.

A.F.C. (Automatic Frequency Control) Alignment: Place A.F.C. Switch in OFF position. Tune the set to an active channel and adjust tuning meter for best picture. Place A.F.C. Switch in ON position, and adjust Trans. (T172) on Main Board for best picture. Picture quality should remain the same. Check the A.F.C. action by turning the fine tuning clockwise and anti-clockwise.

Colour Sync. Adjustment: Tune in a colour programme and warm up for five minutes.

Check the colour appears at the same time as channel selector is moved to adjacent channel up or down.

If not, this is evidence that A.P.C. adjustment is poor. In this case, adjust colour sync. VR (VR508) so that colour appears at the same time by changing the channel or turning the main power switch on and off.

Colour Adjustment: Tune in the colour programme including the colour bar signals.

Set the colour control VR (VR501) to maximum.

Set the DL-Phase control (VR507) for proper colour display.

If the colour adjustment is incorrect, a Venetian Blind Effect will appear in the colour bars.

This case needs adjustment.

Adjust Burst coil (L503) and DL-Matching coil (L504) for minimum Venetian Blind Effect.

Colour Purity Adjustment:

***Note*:** Before attempting any purity adjustments, the receiver should be operated for at least 25 minutes. Purity adjustment requires Rubber Wedge kit.

Demagnetise the picture tube and cabinet using a degaussing coil.

Turn the Contrast and Brightness controls to maximum.

Adjust Red and Blue cut-off controls (VR504 and VR502) to provide only a green raster. Advance the Green Cut-off control (VR503) if necessary.

Loosen the clamp screw holding the yoke, and slide the yoke backward or forward to provide vertical green belt (zone) in the picture screen.

Remove the rubber wedges.

Rotate and spread the tabs of the purity magnet (See figure 3) around the neck of the picture tube until a green belt is obtained in the centre of the screen, and at the same time, centre the raster vertically by adjusting the magnet.

Move the yoke slowly forward or backward until a uniform red screen is obtained. Tighten the clamp screw.

Check the purity of the green and blue raster by adjusting the Cut-off Controls.

Tighten the clamp screw of the yoke temporarily. Obtain a white raster; referring to 'C.R.T. White Balance Adjustment'.

Proceed with convergence adjustment.

C.R.T. White Balance Adjustment: Tune in an active channel.

Set the Colour control to minimum.

Turn the Screen control (on FBT T444) fully anti-clockwise.

Set the Red, Green and Blue controls (VR504, VR503, VR502), to the mid position.

Set the Red and Green Drive controls (VR505, VR506) to the mid position.

Set Service Switch (SW201) to 'V' position to be one horizontal line.

Rotate the Screen control on FBT (T444) gradually clockwise until the second horizontal colour line following the first line appears slightly on the screen. Then turn fully counter-clockwise the two Cut-off controls corresponding to the colours of the first and the second horizontal lines to eliminate the lines.

Set the Screen control to the position where the third horizontal line lights slightly on the screen.

Adjust the two Cut-off Controls set to the minimum as above to obtain the slightly horizontal line at the same levels of three (red, green, blue) colours. (The line will be white if the Cut-off controls are adjusted properly.).

Reset Service Switch (SW201) 'NOR' position to display normal picture.

Rotate the Brightness and Contrast controls to the maximum.

Adjust the Blue and Green Drive controls to obtain proper white-balanced picture in highlight areas.

Rotate the Brightness and Contrast controls to obtain dark grey raster then check the white balance in low brightness. If the white balance is not correct retouch the Cut-off controls and Drive controls to obtain a good white balance in both low and highlight areas.

Sub-Brightness Adjustment: Tune in a colour bar pattern.

Set the Contrast and Colour controls to minimum position, Brightness to maximum.

Set the Sub-Bright control (VR203) to the centre and leave the receiver for five minutes in this state.

Connect the digital volt-meter or high impedance volt-meter to pin Z(+) and Y(+).

Adjust the VR203 to 0·25V.

Convergence Adjustments (See Fig. T121)

***Note*:** Before attempting any convergence adjustments, the receiver should be operated for at least 15 minutes.

Centre Convergence Adjustment: 1. Receive crosshatch pattern with a colour bar signal generator.

2. Adjust the Brightness and Contrast controls for a well defined pattern.

3. Adjust the two tabs of the 4-Pole Magnets to change the angle between them and super-impose red and blue vertical lines in the centre area of the picture screen.

4. Turn both tabs while at the same time keeping angle constant and super-impose red and blue horizontal lines at the centre of the screen.

5. Adjust two tabs of 6-Pole Magnets to super-impose red/blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.

6. Due to interaction between these adjustments steps 3, 4 and 5 should be repeated until satisfactory results are obtained.

Circumference Convergence Adjustment: Loosen the clamping screw of deflection yoke to allow the yoke to tilt.

Put a wedge as shown 2 temporarily. (Do not remove cover paper on adhesive part of the wedge.)

Tilt front of the deflection yoke up or down to obtain better circumference convergence.

Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.

Put other wedge into bottom space and remove the cover paper to stick.

Tilt front of the yoke right or left to obtain better convergence in circumference.

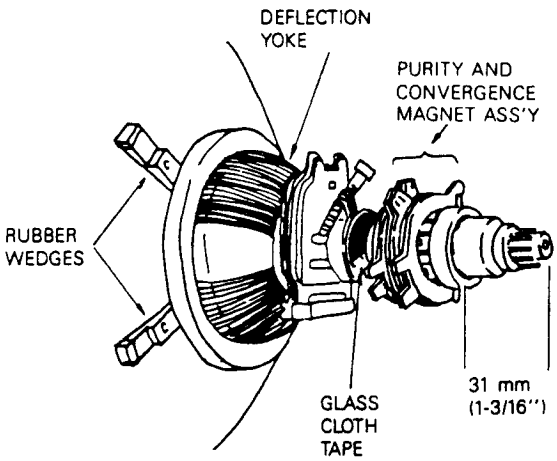
Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.

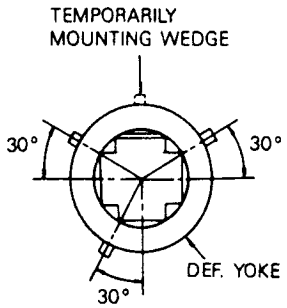
Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.

After fixing three-wedges, re-check overall convergence.

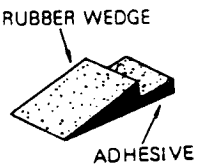
Tighten the screw firmly to fix the yoke and check the yoke is firm.

Stick 3 adhesive tapes on wedges.



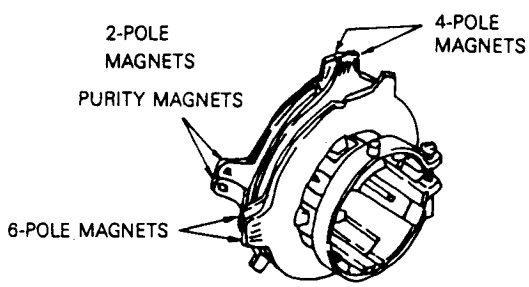


RUBBER WEDGES LOCATION

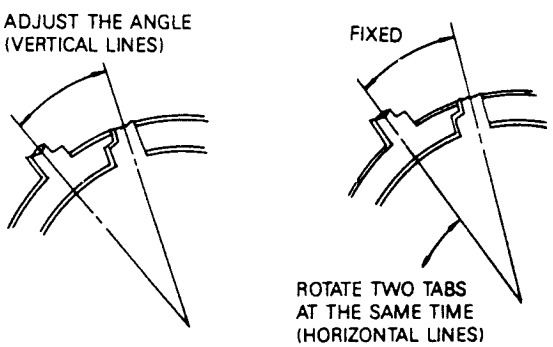


RUBBER WEDGES KIT

T121

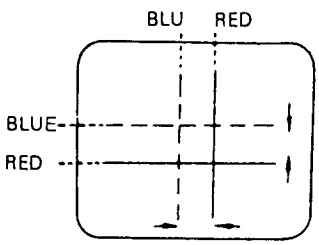


CONVERGENCE MAGNET ASSEMBLY

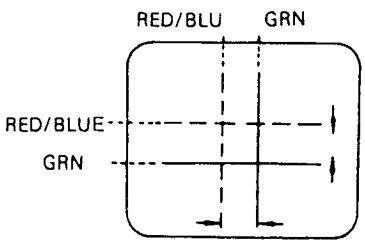


ADJUSTMENT OF MAGNETS

(T121) CONVERGENCE ADJUSTMENTS — P50 CHASSIS

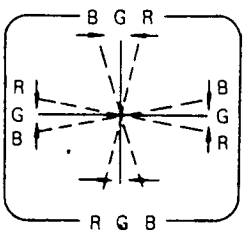


4-POLE MAGNETS MOVEMENT

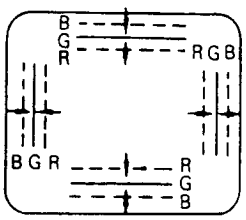


6-POLE MAGNETS MOVEMENT

Centre Convergence by Convergence Magnets



T122



INCLINE THE YOKE UP (OR DOWN)

INCLINE THE YOKE RIGHT (OR LEFT)

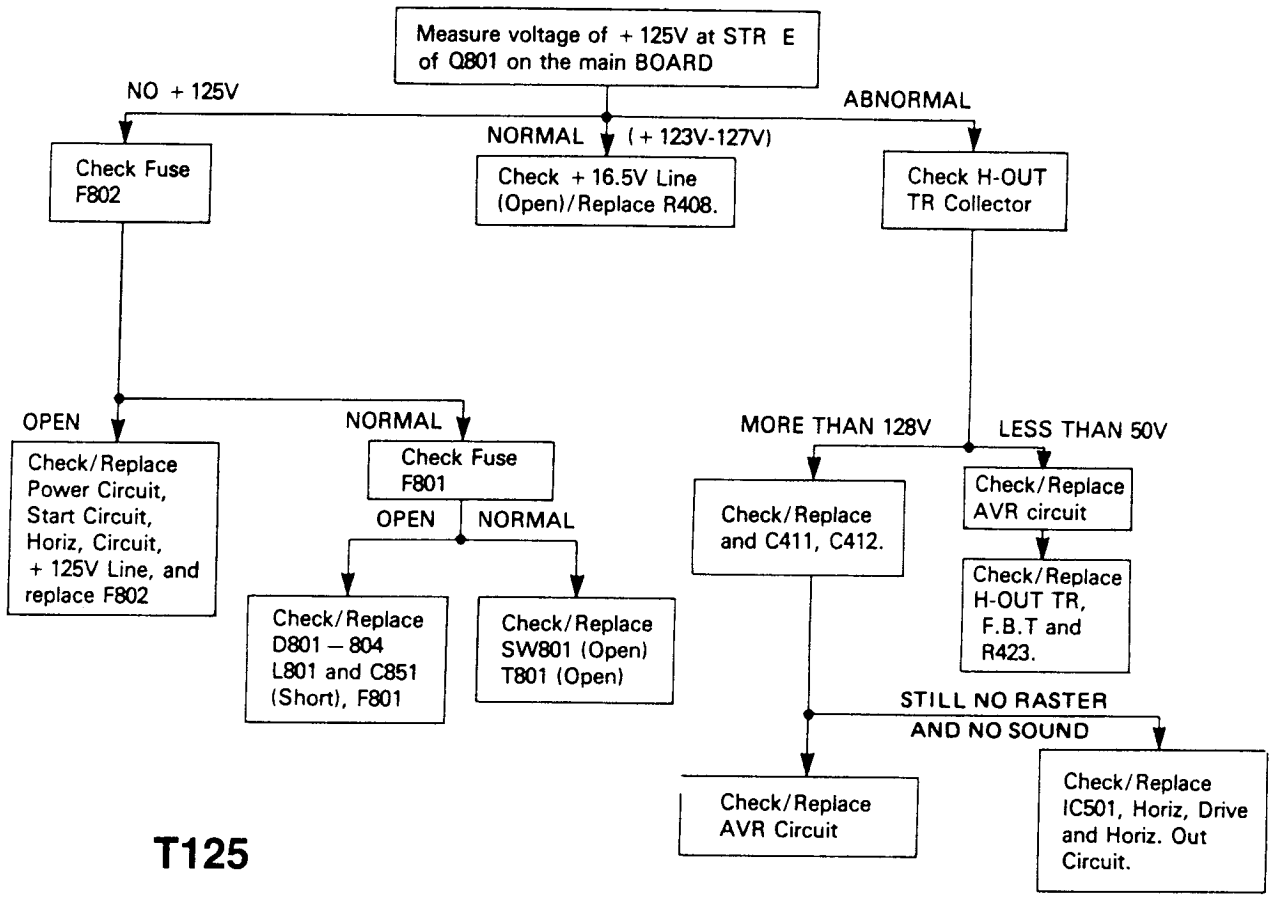
Circumference Convergence by DEF. Yoke

(T122) CONVERGENCE PROCEDURES — P50 CHASSIS

Trouble Shooting Chart: Remote Control Board and Selector Board

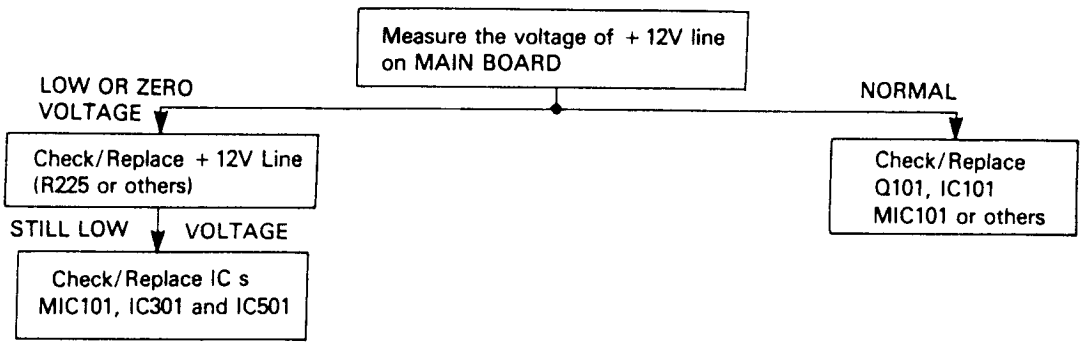
Symptom	Check Point	Result O.K.	Result No Good	Cause
Power relay does operate	(1) AC voltage between pins S2 of CNP801	AC 13V	0V	Defect in P801 Defect in F801 Poor soldering of wires.
	(2) Pressing the power button, check the DC voltage of Pin (26) of ICS01	2·5V	0V	Defect or poor soldering of RR50, RQ16, Relay switch (RL01), RR02. Defect or poor contact of ISC01, CNP801
Voltage chart of selector board	(1) Pin (2) of CN01	125V	0V	Poor contact of CN01 or defect to +125V line on main board.
	(2) Pin (3) of CN01	16V	0V	Poor contact of CN01 or no good to +16·5V line on main board.
	(3) Emitter of RQ01	12V	Over 14V or below 10V	Defect in RQ01, RD06, RR01.
	(4) Emitter of RQ02	5V	Below 2V	Defect in RQ02, RD08, RR04.
	(5) Emitter of RQ12	24V	0V	Poor contact or defect of CN01, RR12, RR14, RR15, RR16, RQ12, RD09 or +125V line on main board.
Voltage chart of tuner	*Voltage Test point* / *U.H.F.*: B+ 12V, BU 12V			Defect in 16·5V line or tuner. Defect in RR59, ICS01. Defect in RQ18, ICS01. Defect in DS003, ICS01.
Channels are not displayed	Check CNR03, RR67			Poor contact or defect of CNR03 or 5V lines.
Channels up/down or Volume up/down or Fine up/down doesn't operate	Pressing the channel, volume fine up/down button, check ICS01. (The pin (18)-(20) of ICS01 are keyboard input and the pin (21)-(24) of ICS01 are keyboard input and then pin (21)-(24) of ICS01 are keyboard output).	5V	0V	If keyboard input voltage has 5V but it doesn't deliver to keyboard output, defect or poor contact of CNR02 or select control board. (or SW027). If there is no keyboard input voltage, defect of poor control of ISC01
(Channel search or memory doesn't operate)	(Pressing the channel search or memory button, check SW027 or corresponding pin voltage of ICS01)	5V	0V	
Remote control doesn't operate	(1) Depressing the transmitter key, check the collector waveform of QT02 or QT03 on Transmitter PCB.	38KHz, 2Vp-p	Below 1·5Vp-p	Defect in batteries, ICT01 (M708LB1). If QT02 collector voltage is 38KHz 2Vp-p and still remote control doesn't operate, check the step (2).
	(2) Depressing the transmitter key, check pin (11) of ISC01	12Vp-p pulse	5Vp-p	Defect in ICS01.

NO RASTER AND NO SOUND

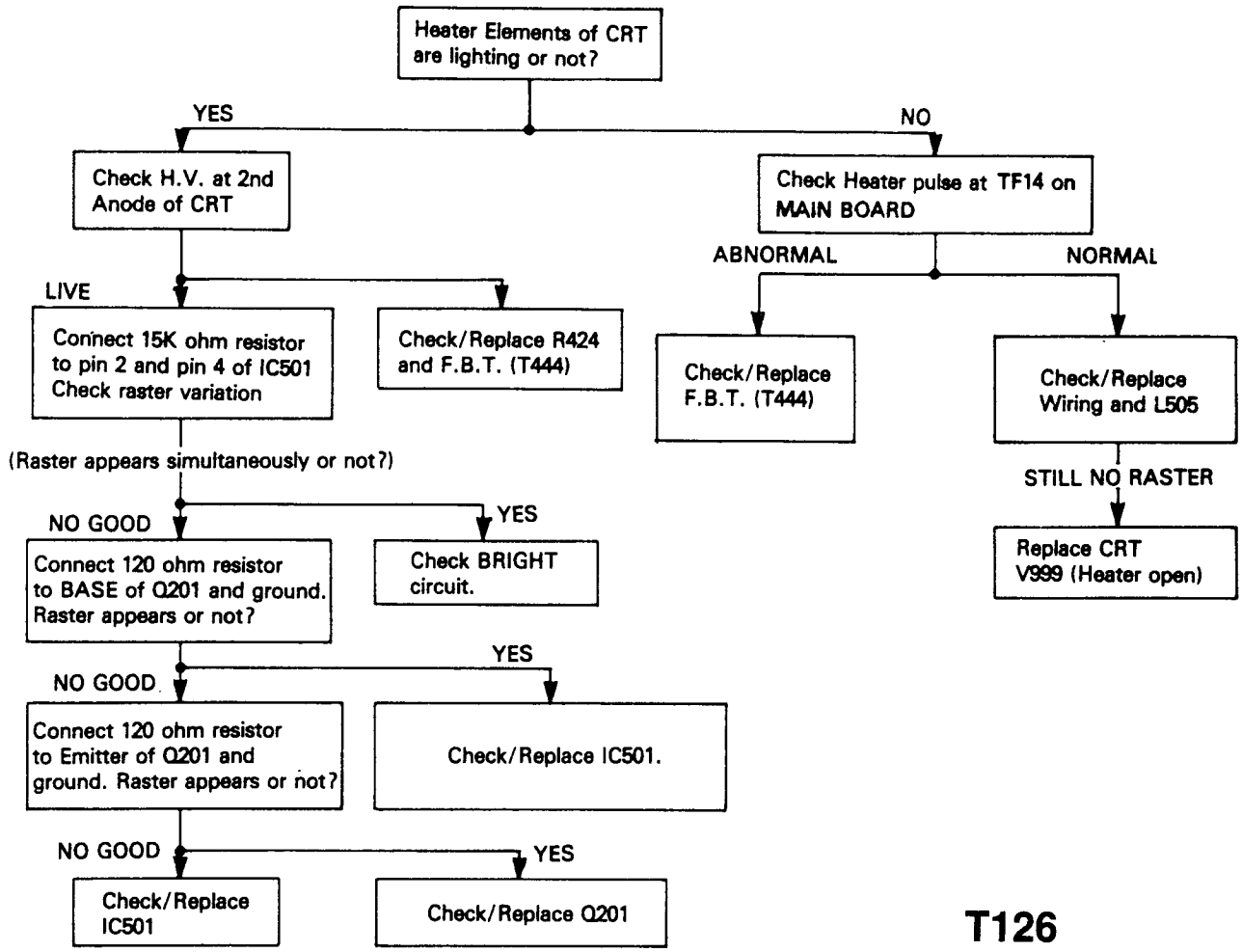

Measure voltage of + 125V at STR E of Q801 on the main BOARD
NO + 125V
NORMAL (+ 123V-127V)
ABNORMAL
Check Fuse F802
Check + 16.5V Line (Open)/Replace R408.
Check H-OUT TR Collector
OPEN
NORMAL
Check/Replace Power Circuit, Start Circuit, Horiz, Circuit, + 125V Line, and replace F802
Check Fuse F801
OPEN
NORMAL
Check/Replace D801 – 804 L801 and C851 (Short), F801
Check/Replace SW801 (Open) T801 (Open)
MORE THAN 128V
LESS THAN 50V
Check/Replace and C411, C412.
Check/Replace AVR circuit
Check/Replace H-OUT TR, F.B.T and R423.
STILL NO RASTER AND NO SOUND
Check/Replace AVR Circuit
Check/Replace IC501, Horiz, Drive and Horiz. Out Circuit.

T125

NO RASTER (NOSOUND OR WEAK SOUND)

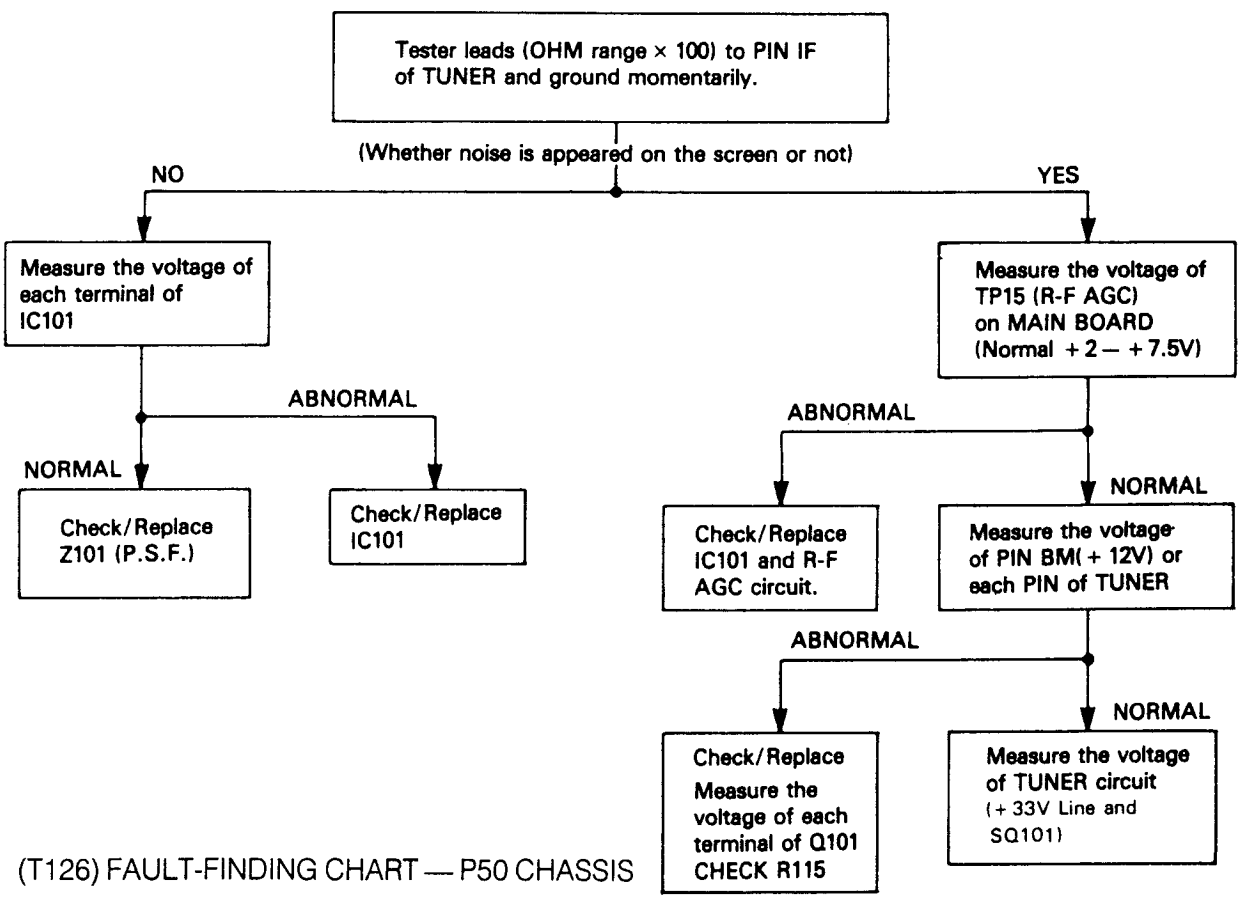

Measure the voltage of + 12V line on MAIN BOARD
LOW OR ZERO VOLTAGE
NORMAL
Check/Replace + 12V Line (R225 or others)
Check/Replace Q101, IC101 MIC101 or others
STILL LOW VOLTAGE
Check/Replace IC s MIC101, IC301 and IC501

NO RASTER (SOUND OK)


Heater Elements of CRT are lighting or not?
YES
NO
Check H.V. at 2nd Anode of CRT
Check Heater pulse at TF14 on MAIN BOARD
ABNORMAL
NORMAL
LIVE
Connect 15K ohm resistor to pin 2 and pin 4 of IC501 Check raster variation
Check/Replace R424 and F.B.T. (T444)
Check/Replace F.B.T. (T444)
Check/Replace Wiring and L505
(Raster appears simultaneously or not?)
STILL NO RASTER
NO GOOD
YES
Connect 120 ohm resistor to BASE of Q201 and ground. Raster appears or not?
Check BRIGHT circuit.
Replace CRT V999 (Heater open)
NO GOOD
YES
Connect 120 ohm resistor to Emitter of Q201 and ground. Raster appears or not?
Check/Replace IC501.
NO GOOD
YES
Check/Replace IC501
Check/Replace Q201

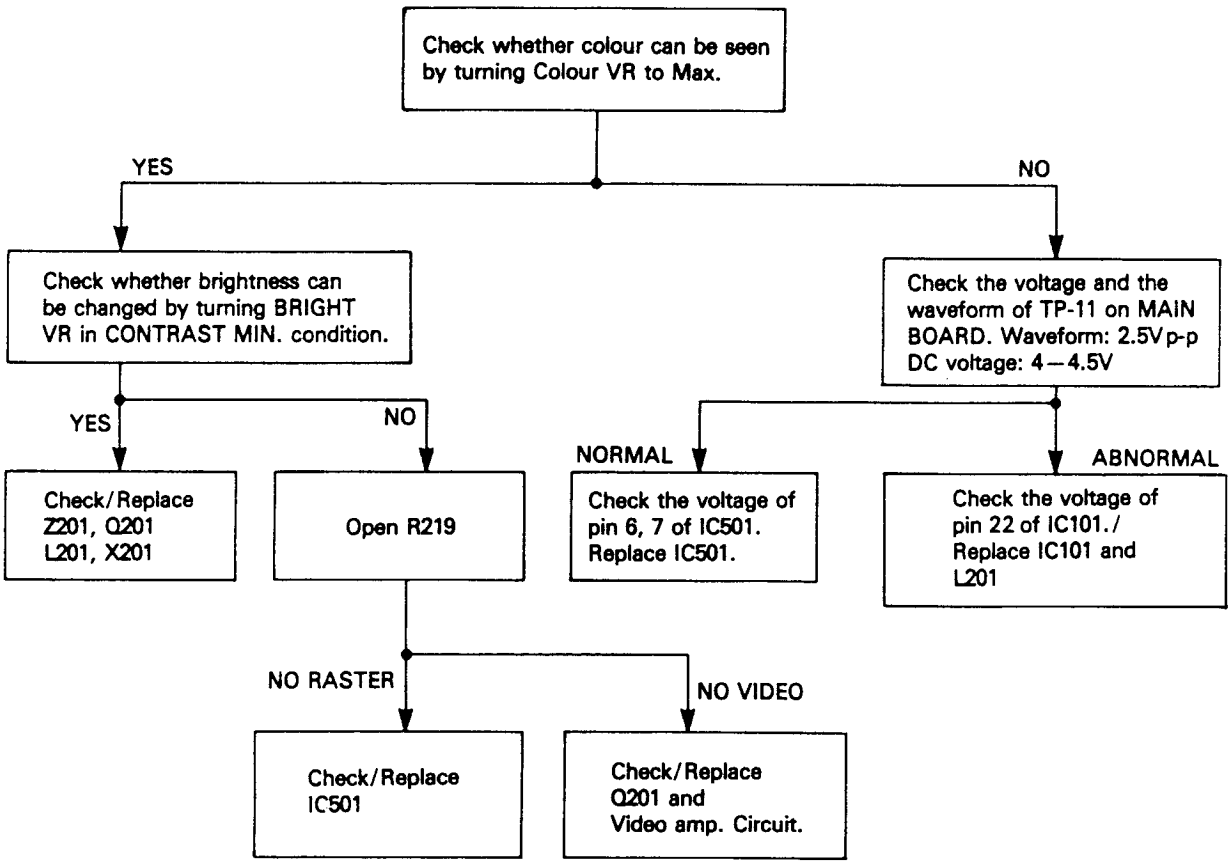
T126

NO PICTURE (RASTER ON) AND NO SOUND


Tester leads (OHM range × 100) to PIN IF of TUNER and ground momentarily.
(Whether noise is appeared on the screen or not)
NO
YES
Measure the voltage of each terminal of IC101
Measure the voltage of TP15 (R-F AGC) on MAIN BOARD (Normal +2 — +7.5V)
ABNORMAL
ABNORMAL
NORMAL
NORMAL
Check/Replace Z101 (P.S.F.)
Check/Replace IC101
Check/Replace IC101 and R-F AGC circuit.
Measure the voltage of PIN BM(+ 12V) or each PIN of TUNER
ABNORMAL
NORMAL
Check/Replace Measure the voltage of each terminal of Q101 CHECK R115
Measure the voltage of TUNER circuit (+33V Line and SQ101)

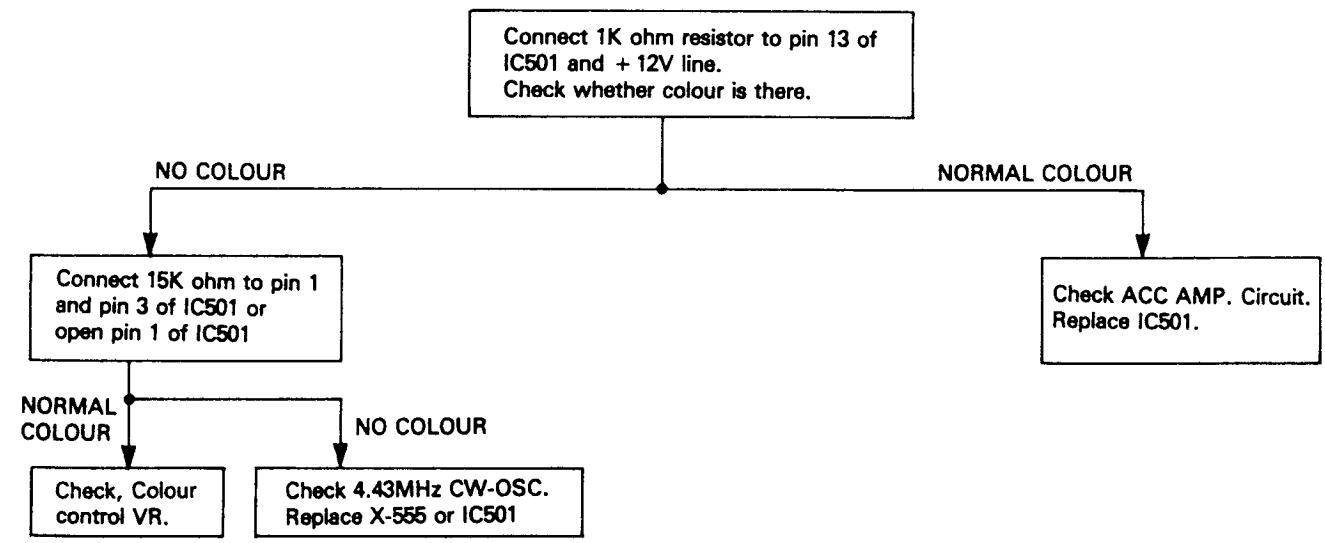
(T126) FAULT-FINDING CHART — P50 CHASSIS

NO PICTURE (RASTER AND SOUND OK OR NO SOUND)


Check whether colour can be seen by turning Colour VR to Max.
YES
NO
Check whether brightness can be changed by turning BRIGHT VR in CONTRAST MIN. condition.
Check the voltage and the waveform of TP-11 on MAIN BOARD. Waveform: 2.5Vp-p DC voltage: 4—4.5V
YES
NO
NORMAL
ABNORMAL
Check/Replace Z201, Q201 L201, X201
Open R219
Check the voltage of pin 6, 7 of IC501. Replace IC501.
Check the voltage of pin 22 of IC101./ Replace IC101 and L201
NO RASTER
NO VIDEO
Check/Replace IC501
Check/Replace Q201 and Video amp. Circuit.

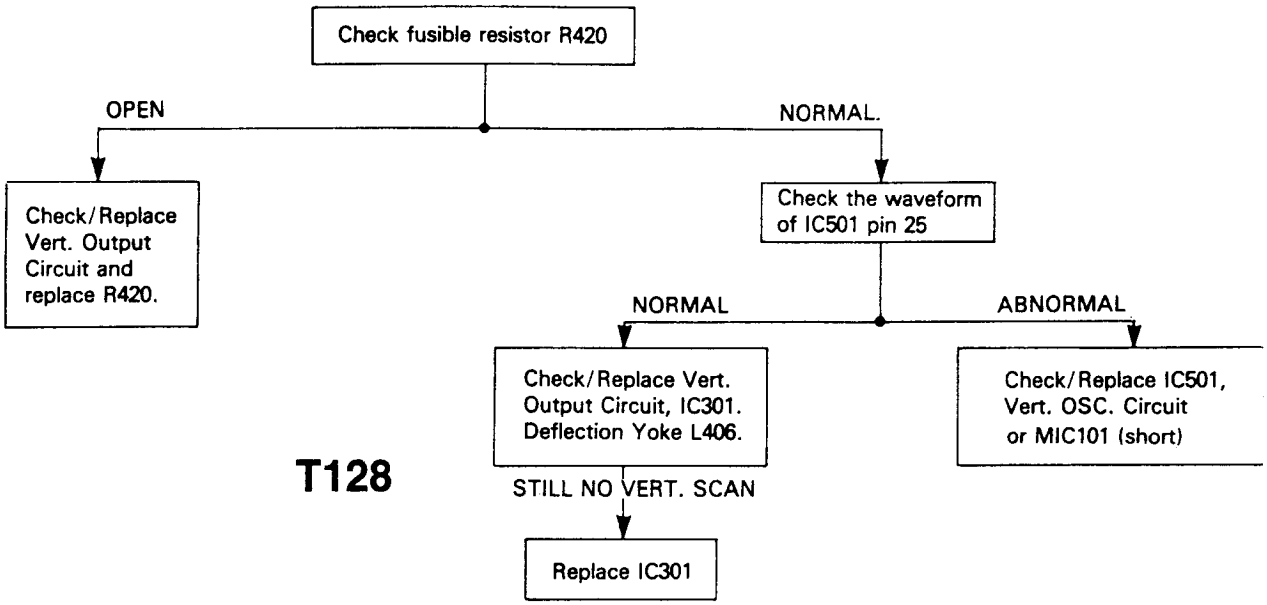
T127

NO COLOUR


Connect 1K ohm resistor to pin 13 of IC501 and + 12V line. Check whether colour is there.
NO COLOUR
NORMAL COLOUR
Connect 15K ohm to pin 1 and pin 3 of IC501 or open pin 1 of IC501
Check ACC AMP. Circuit. Replace IC501.
NORMAL COLOUR
NO COLOUR
Check, Colour control VR.
Check 4.43MHz CW-OSC. Replace X-555 or IC501

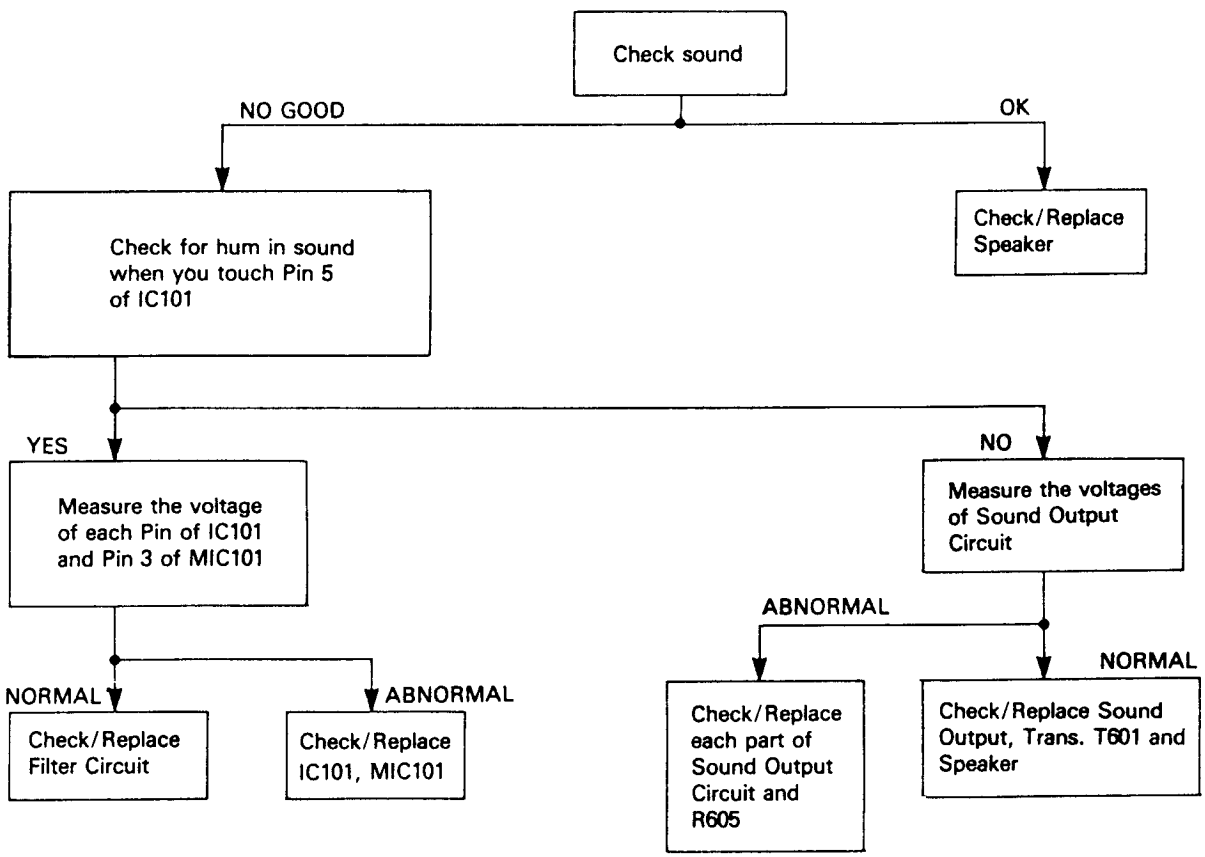
(T127) FAULT-FINDING CHART — P50 CHASSIS

NO VERT. SCAN (ONE HORIZ. LINE RASTER)


Check fusible resistor R420
OPEN
NORMAL.
Check/Replace Vert. Output Circuit and replace R420.
Check the waveform of IC501 pin 25
NORMAL
ABNORMAL
Check/Replace Vert. Output Circuit, IC301. Deflection Yoke L406.
Check/Replace IC501, Vert. OSC. Circuit or MIC101 (short)
STILL NO VERT. SCAN
Replace IC301

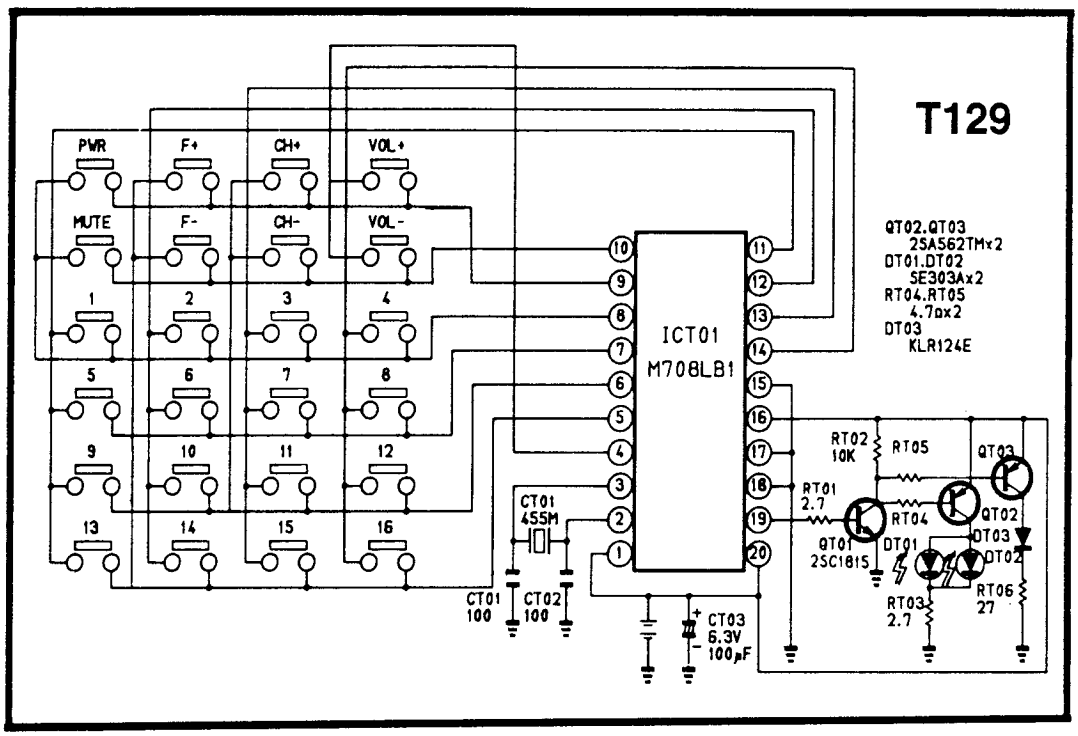
T128

NO SOUND

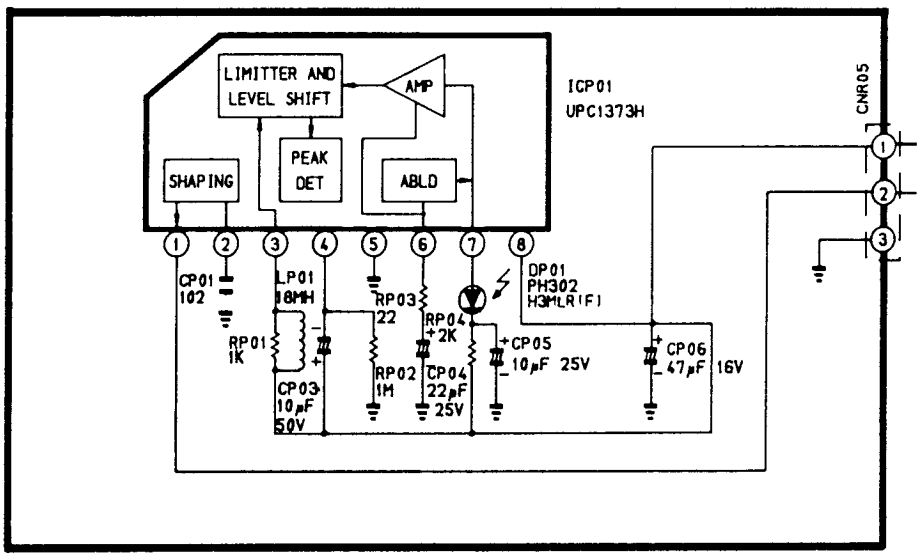


(T128) FAULT-FINDING CHART — P50 CHASSIS

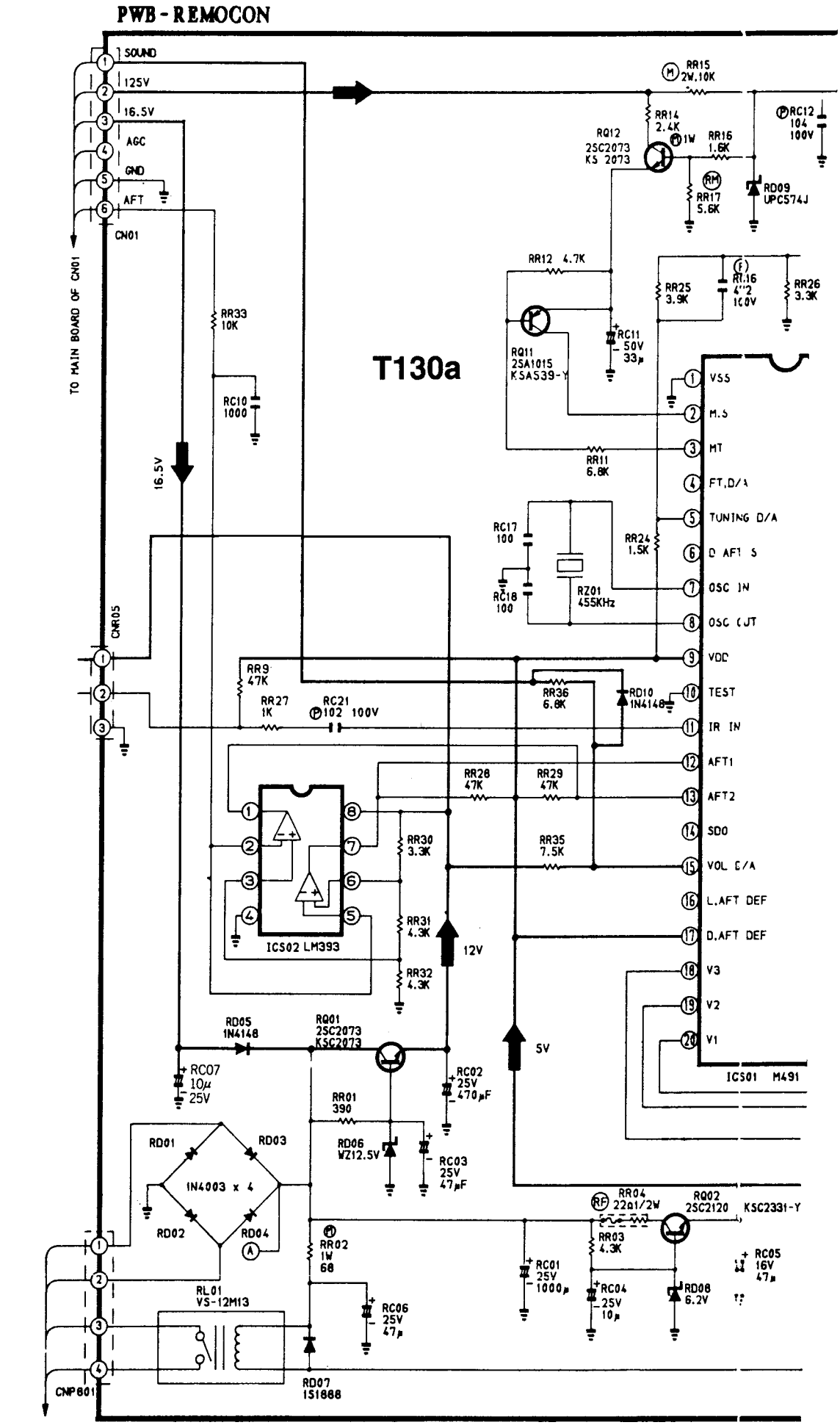
P.W.B. TRANSMITTER



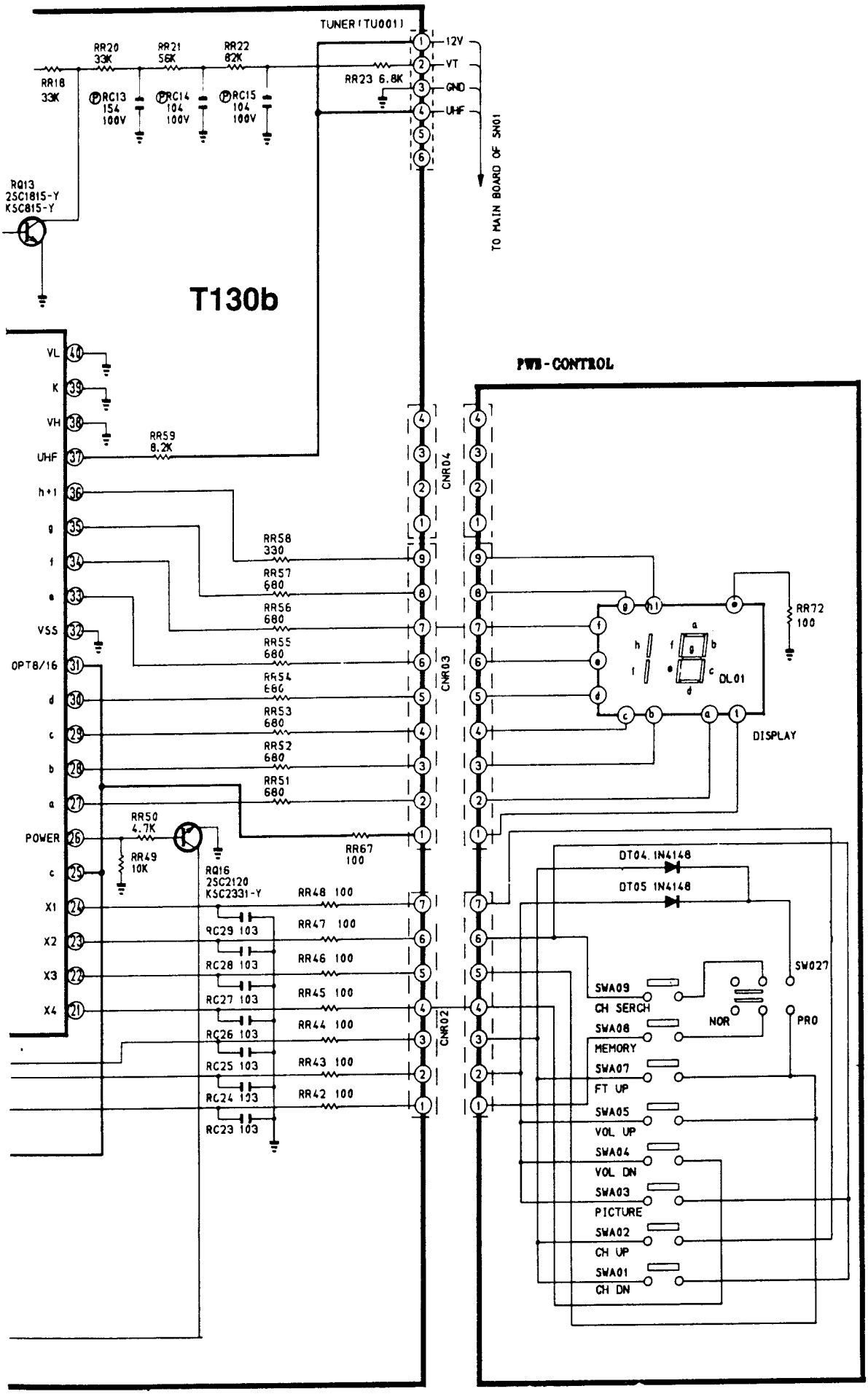
P.W.B. PRE-AMP



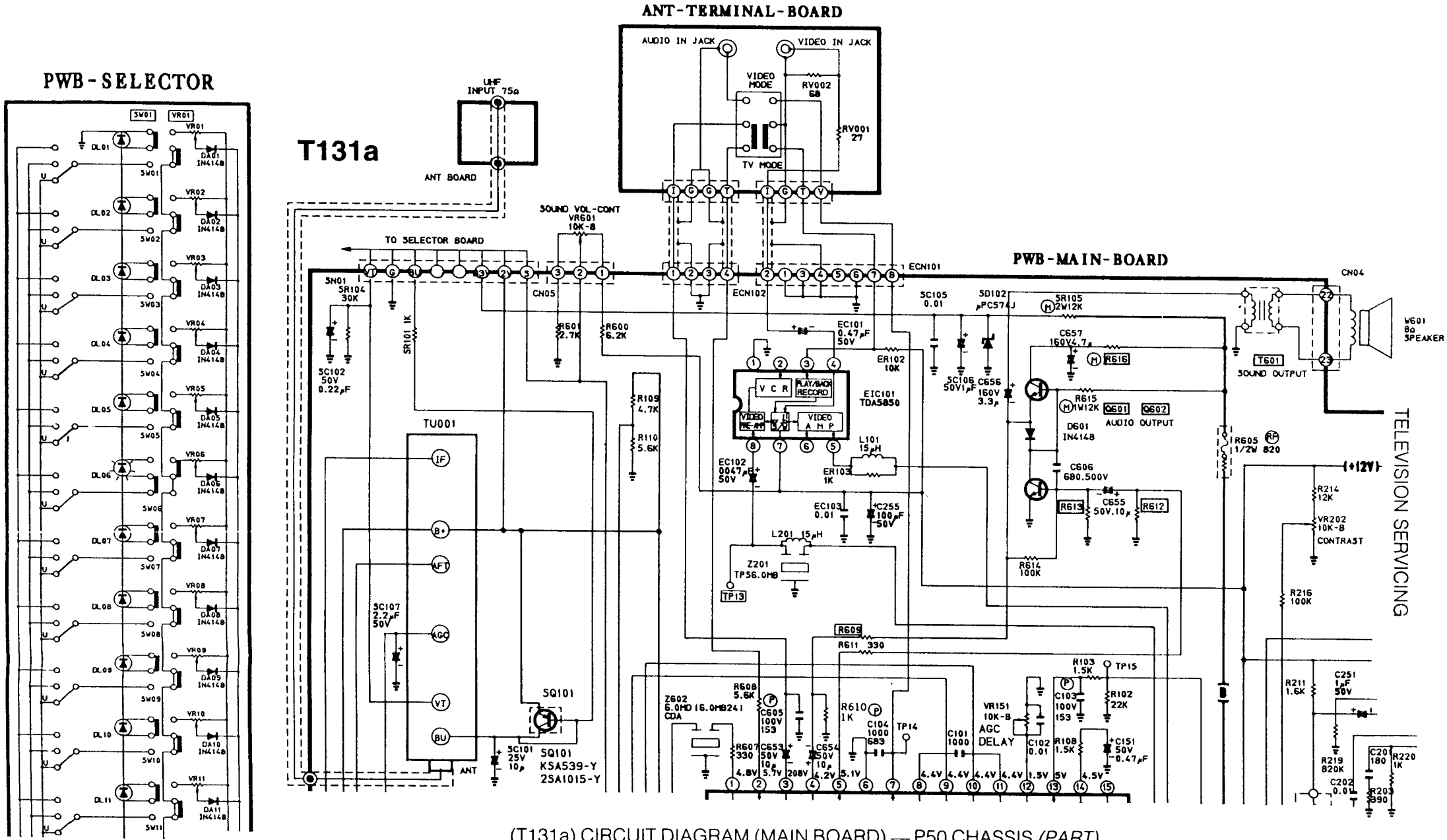
(T129) CIRCUIT DIAGRAM (REMOTE CONTROL) — P50 CHASSIS



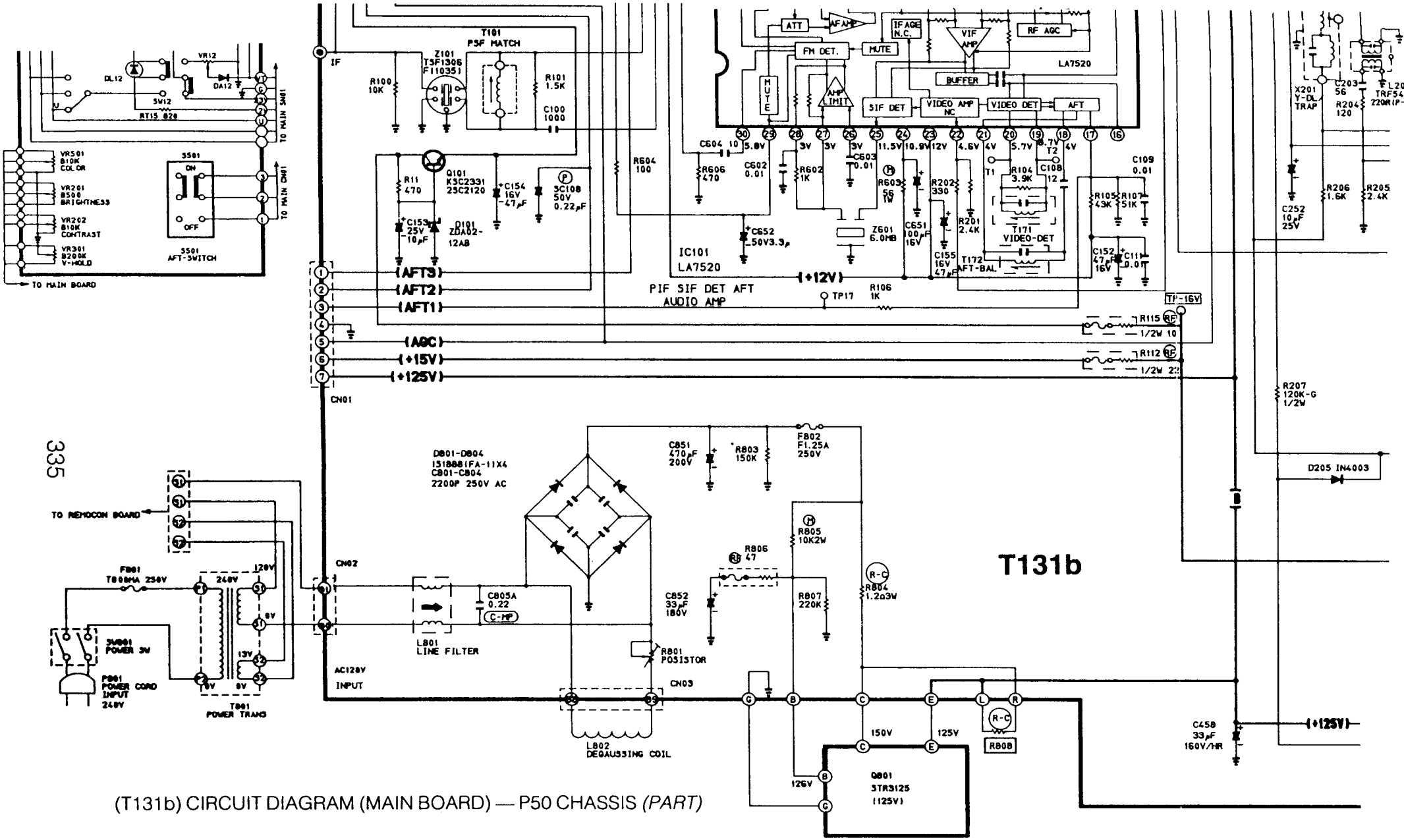
(T130a) CIRCUIT DIAGRAM (CONTROL) — P50 CHASSIS



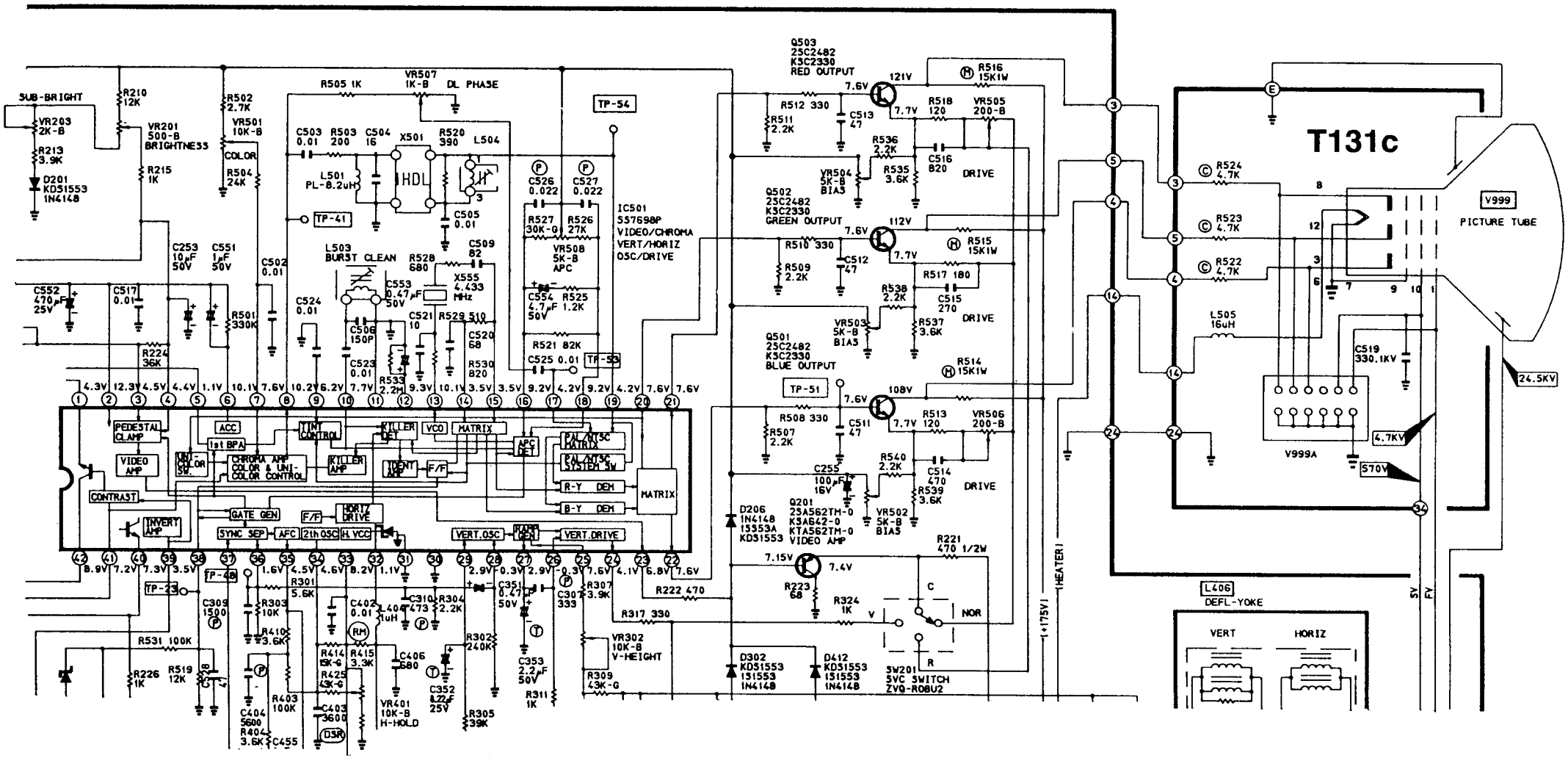
(T130b) CIRCUIT DIAGRAM (CONTROL) — P50 CHASSIS



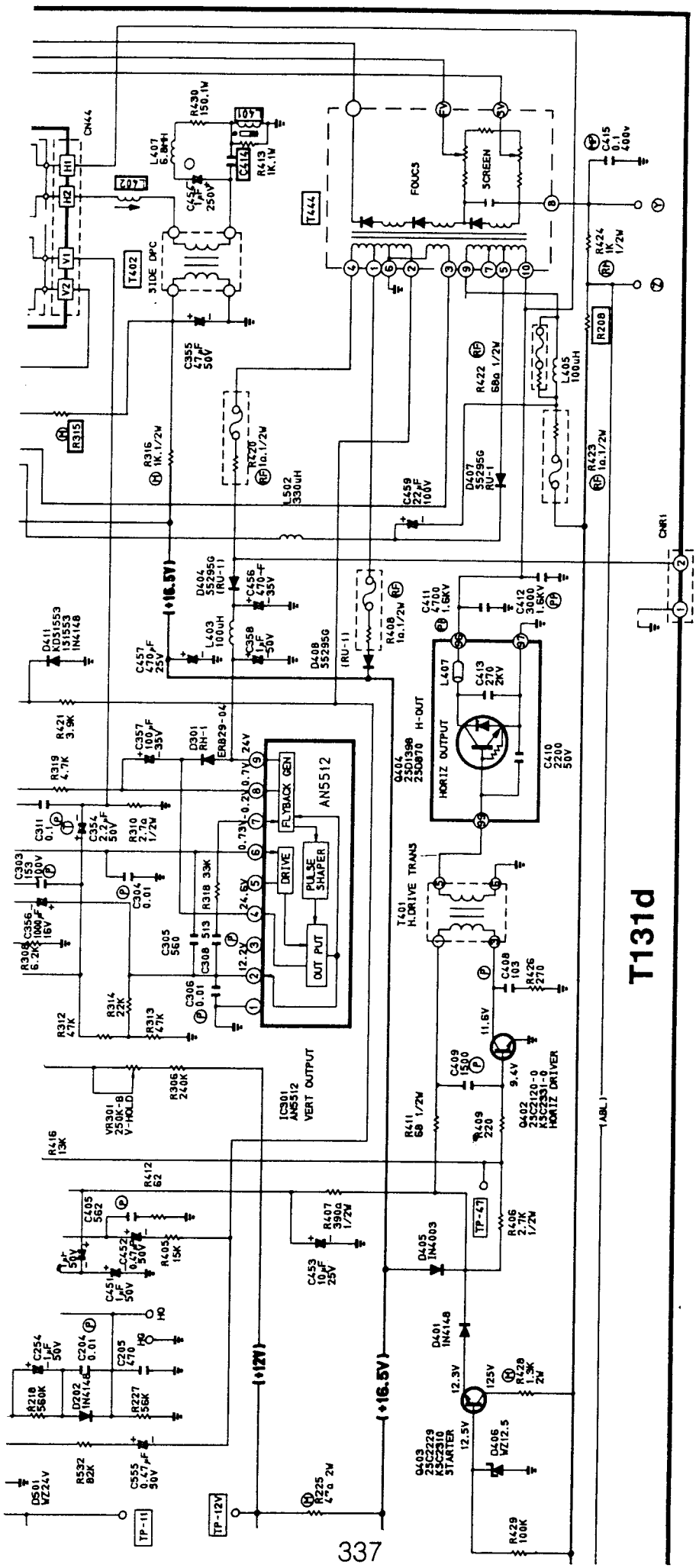
(T131a) CIRCUIT DIAGRAM (MAIN BOARD) — P50 CHASSIS *(PART)*



(T131b) CIRCUIT DIAGRAM (MAIN BOARD) — P50 CHASSIS *(PART)*



(T131c) CIRCUIT DIAGRAM (MAIN BOARD) — P50 CHASSIS *(PART)*


T131d
AN5512
FLYBACK GEN
DRIVE
PULSE SHAPER
OUT PUT
H-OUT
HORIZ OUTPUT
H.DRIVE TRANS
VERT OUTPUT
HORIZ DRIVER
STARTER
SCREEN
FOUC3
+16.5V
+12V
TP-11
TP-12V
TP-47